IDAHO

FISH & GAME DEPARTMENT

JOSEPH C. GREENLEY, DIRECTOR

FEDERAL AID IN FISH AND WILDLIFE RESTORATION JOB PROGRESS REPORT Project F-49-R-10

SALMON AND STEELHEAD INVESTIGATIONS

Job No. 1-a. Salmon Spawning Ground Surveys

Period Covered: March 1, 1971 - February 29, 1972

By

Terry Holubetz, Regional Fishery Biologist
Steven A. Hoss, Fishery Biologist
Thomas L. Welsh, Regional Fishery Biologist
Donald Corley, Regional Fishery Biologist

Boise, Idaho

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JOB PROGRESS REPORT RESEARCH PROJECT STATEMENT

State of Idaho

Project No. F-49-R-10

Job No. 1-a

Name: SALMON AND STEELHEAD INVESTIGATIONS

Title: Salmon Spawning Ground Surveys

Period Covered: March 1, 1971 to February 29, 1972

ABSTRACT:

Each year regional fishery biologists survey major chinook salmon spawning areas in their respective regions to count the number of redds constructed in trend count areas and to examine, measure, and sex carcasses. The data are made available for trend analysis and correlation with dam and weir counts in management reports.

Redd counts and sex-length data for 1971 are presented in a series of attached tables and maps.

Submitted by:

Terry Holubetz, Regional Fishery Biologist Steven A. Hoss, Fishery Biologist
Thomas L, Welsh, Regional Fishery Biologist Donald Corley, Regional Fishery Biologist

RECOMMENDATIONS:

The redd count surveys and sex-length data collections should be continued to provide management data.

OBJECTIVES:

To count chinook salmon redds in established trend areas.

To measure and sex representative samples of spawned-out chinook carcasses.

TECHNIQUES USED:

Redd counts are made from low flying, fixed-wing aircraft, helicopter, or on foot depending on which technique is best suited for a stream. Redds are counted when preliminary observations indicate that spawning is over and before redds become obscure from algae and silt.

Carcass surveys should be made three times during the extent of post-spawning mortalities to eliminate bias in sex ratios noted early and late in the season.

The redd counts on the lower section of the North Fork of the Salmon River were discontinued and a new area above Gibbonsville added in 1969. The counts for 1969, 1970 and 1971 are not directly comparable to those from earlier years (comparable counts may be obtained from maps).

Chinook redd counts are included for selected tributaries of the Clearwater River in which reintroduction efforts have created sizable runs.

FINDINGS:

Refer to attached Tables and Maps.

Figure 1. Chinook salmon redd count survey areas, Salmon River, Idaho

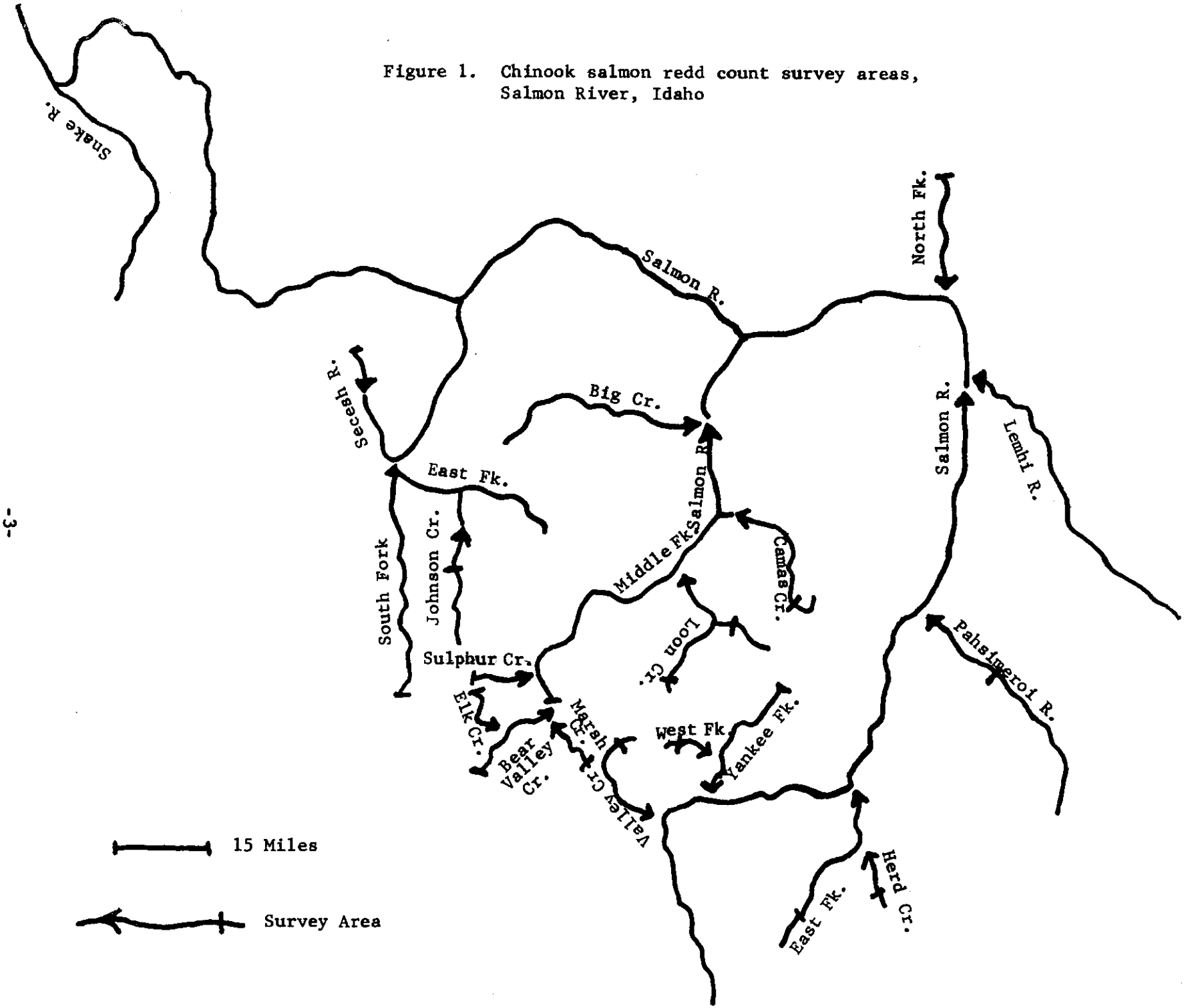


Table 1. Salmon River chinook salmon redd counts in stream sections used by early and late spawning (spring and summer) chinook - Idaho, 1971.

Streams	Number of Redds Counted in:						
	1966	1967	1968	1969	1970	5 Yr. Ave.	1971
Spring Chinook							
Alturas Lake Cr.	119	74	110	41	68	82	50
Upper Salmon River	699	943	637	313	432	605	619
Upper Valley Creek	219	253	330	35	202	208	89
Upper Yankee Fork	112	250	234	53	67	143	57
Upper East Fork	511	614	622	174	468	478	370
Herd Creek	79	32	57	43	47	52	49
Marsh Creek Drainage	406	560	466	235	456	425	281
Lemhi River	819	804	589	360	371	589	407
North Fork Salmon	70	66	145	155*	95*	106	53*
Bear Valley Creek	534	445	574	356	334	449	108
Elk Creek	525	420	483	349	302	416	173
Sulphur Creek	142	134	142	138	93	130	58
Upper Big Creek	127	67	90	65	68	83	32
Subtotal	4,362	4,662	4,479	2,317	3,003	3,766	2,346
Summer Chinook							
Lower Salmon River	390	365	223	120	150	250	220
Lower Valley Creek	184	79	63	22	41	78	147
Lower East Fork	216	234	235	138	123	189	149
Loon Creek	49	96	135	110	43	87	79
South Fork Salmon River	980	854	515	636	527	702	421
Johnson Creek	110	286	127	273	130	185	183
Secesh River-Lake Cr.	140	140	58	104	63	101	80
Lower Big Creek	51	94	33	72	23	55	52
Subtotal	2,120	2,148	1,389	1,475	1,100	1,647	1,331
Unclassified Spawners							
Camas Creek	212	256	251	94	86	180	120
Lower Yankee Fork	132	65	97	44	79	83	41
West Fk. Yankee Fk.	210	283	284	17	112	181	31
Middle Fork Salmon	91	30	31	15	62	46	14
Subtotal	645	634	663	170	339	490	206
Total	7,127	7,444	6,531	3,962	4,442	5,903	3,883

* This counting area was changed in 1969 and is not comparable to previous years.

Table 2. Clearwater River chinook salmon redd counts in stream sections used by chinook - Idaho, 1971.

Streams	Number of Redds counted in:						
	1966	1967	1968	1969	1970	Average	1971
Selway River	36	22	16	57	65	39	55
Bear Creek	8	7	7	6	19	9	14
Running Creek	--	--	4	21	10	12	8
Whitecap Creek	--	--	--	--	4	4	--
Crooked Fork*	7	0	15	112	34	34	1
Total	51	29	42	196	132	98	78

* Ground survey

Table 3. Length frequency distribution for spawned-out chinook salmon in stream areas believed to be used primarily by spring-run fish during 1971.

Fork Length (inches)	Bear Valley Cr.		Elk Creek		Sulphur Cr.		Big Creek (Upper)	
	Female	Male	Female	Male	Female	Male	Female	Male
15								
16		3		1				
17								
18		4				1		
19		3				5		
20		3					1	
21				1				
22								
23		1						
Subtotal		14		2		6	1	
24		1						
25	1			1				
26	1	7		2		1		1
27	2	7	1	2		1		
28	6	13		5				
29	2	10	3	3				
30	6	14		4				1
31	1	9	1					
Subtotal	19	61	5	17		2		2
32		3	1			1	2	
33	3	2	1					
34	8	1	3				1	
35	12	1	5	1	1			
36	16	5	10	1				
37	5	4	7	2		1		
38	12	4	1		1		3	
39	3	1	1				1	
40	2	9				1		
41	1	2		2				
42	1	1				1		
43								
44								
45								
46								
Subtotal	63	33	29	6	2	4	7	
GRAND TOTAL	82	108	34	25	2	12	8	2

Table 3 (Continued)

Fork Length (Inches)	Lemhi River		Salmon River (Upper)		East Fork (Upper)		Valley Creek (Upper)		Marsh Creek	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
15										
16		1		2				1		
17				1		1				
18		1		1		3				1
19				2		1		2		4
20				2				1		
21				4		1		1		
22				3		1		1		
23				8				4		
Subtotal	0	2	0	23	0	7	0	10	0	5
24			1	8			2	5		
25	2	1	3	5		1		5	3	
26	4	2		9		5	3	10	1	1
27	15	3	5	13	3		4	7	3	
28	15	2	8	10	2	2	3	7	3	3
29	8	6	9	7	3	3	3	4	10	1
30	8	3	15	9	4	1	3	3	4	
31	4	3	5	8	6	3	4	7	7	2
Subtotal	56	20	46	69	18	15	22	48	31	7
32	5	2	8	8	4	7	6	5	3	1
33	3	1	7	8	9	4	11	1		2
34	5	1	17	7	11	3	6	1	5	1
35			6	1	7	2	7	3	6	2
36	3	2	23	7	13	4	13	8	16	4
37		1	19	3	22	7	4	2	6	4
38		3	9	7	5	18	4	2	5	2
39			3	3	1	4	2		1	3
40			2	5		2	1	1	1	7
41				4	2	6		2		6
42				7				3		
43				2		2				1
44				1		2				
45										
46										1
Subtotal	16	10	94	63	74	61	54	28	43	34
Grand Total	72	32	140	155	92	83	76	86	74	46

Table 4. Length frequency distribution for spawned-out chinook salmon in stream areas believed to be used primarily by summer-run fish during 1971.

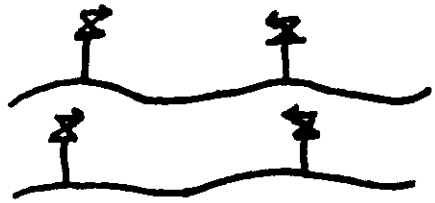
Fork Length (Inches)	Johnson Cr.		Lake Cr. & Secesh R.		So. Fk. Salmon	
	Female	Male	Female	Male	Female	Male
14						
15						
16		1				1
17		1				2
18		1		1		2
19		6		2		11
20		8		4		4
21		7				18
22		11				12
23	1	1			1	4
24	1	3			3	3
Subtotal	2	39		7	4	57
25		5		1	3	1
26	3	8		1	6	8
27	4	12		9	5	16
28	9	25	1	5	12	17
29	18	36	1	4	26	26
30	32	35	5	8	35	22
31	17	19	6	5	24	16
32	7	14	2	3	13	13
33	14	8		2	12	8
Subtotal	104	162	15	38	136	127
34	20	10	1	1	12	9
35	17	4	4		11	3
36	10	3	3	2	19	2
37	6	1	1		11	4
38	2	2			2	1
39						
40	1				1	
41						1
42						
43						
44						
Subtotal	56	20	9	3	56	20
GRAND TOTAL	162	221	24	48	196	204

A P P E N D I X

LEGEND

Ground Survey Sections

Aerial Survey Sections



Ground Redd Counts

Aerial Redd Counts

Aerial-Ground Check Areas

Aerial-Ground Check Area Count

Migratory Block

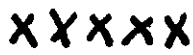
Road

Trail

Forest Service Stations

Landing Strip

Fence



Pack Bridge

Highway Bridge

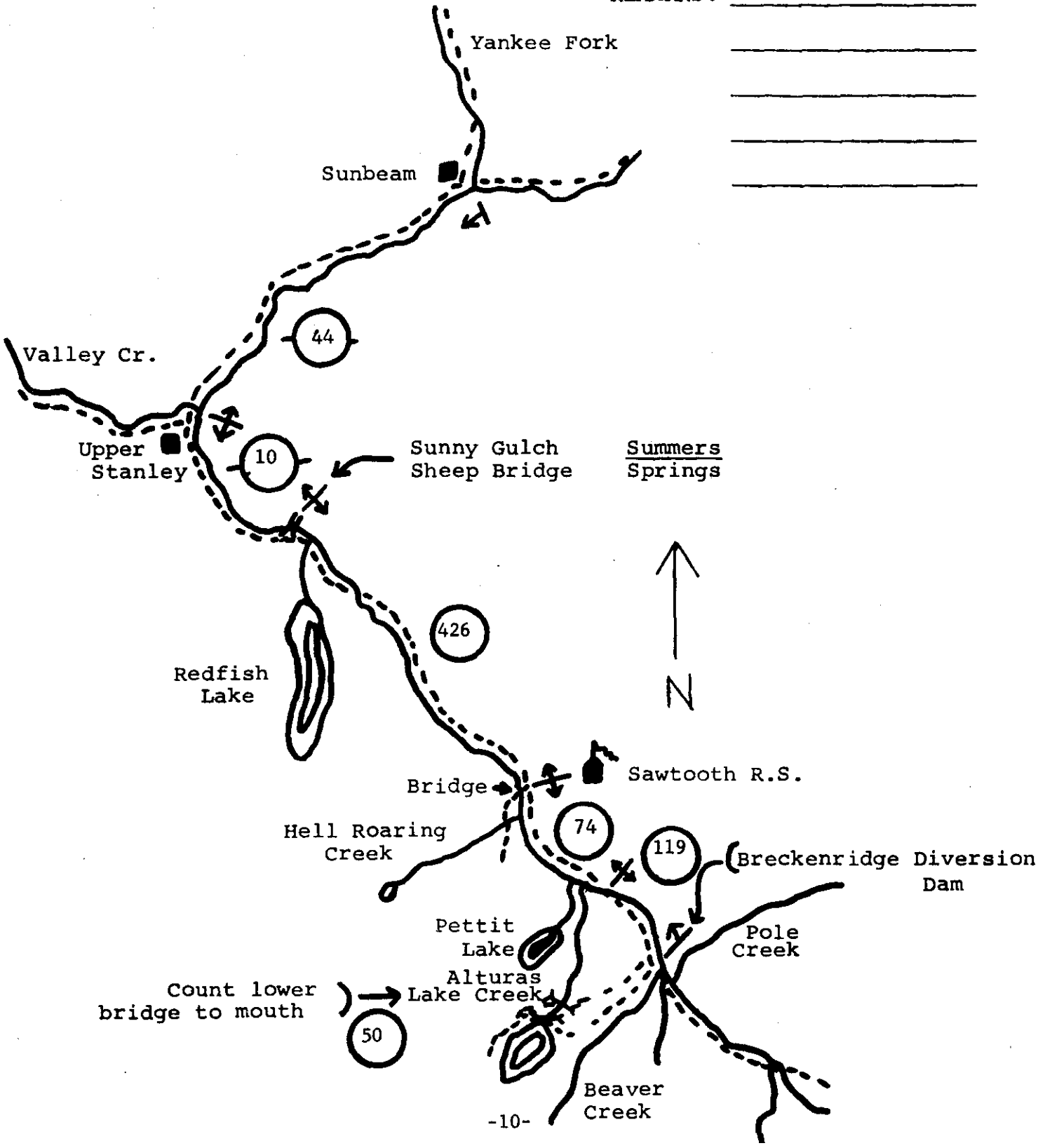
DRAINAGE Salmon River SURVEY DATE 8-26, 9-11, 9-14, 9-15, 9-16

STREAM Salmon River MAP SCALE 1/4" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Yates, Smith, Strain, Raymond

TIMING: Early On Time Late (mark one)

REMARKS: _____



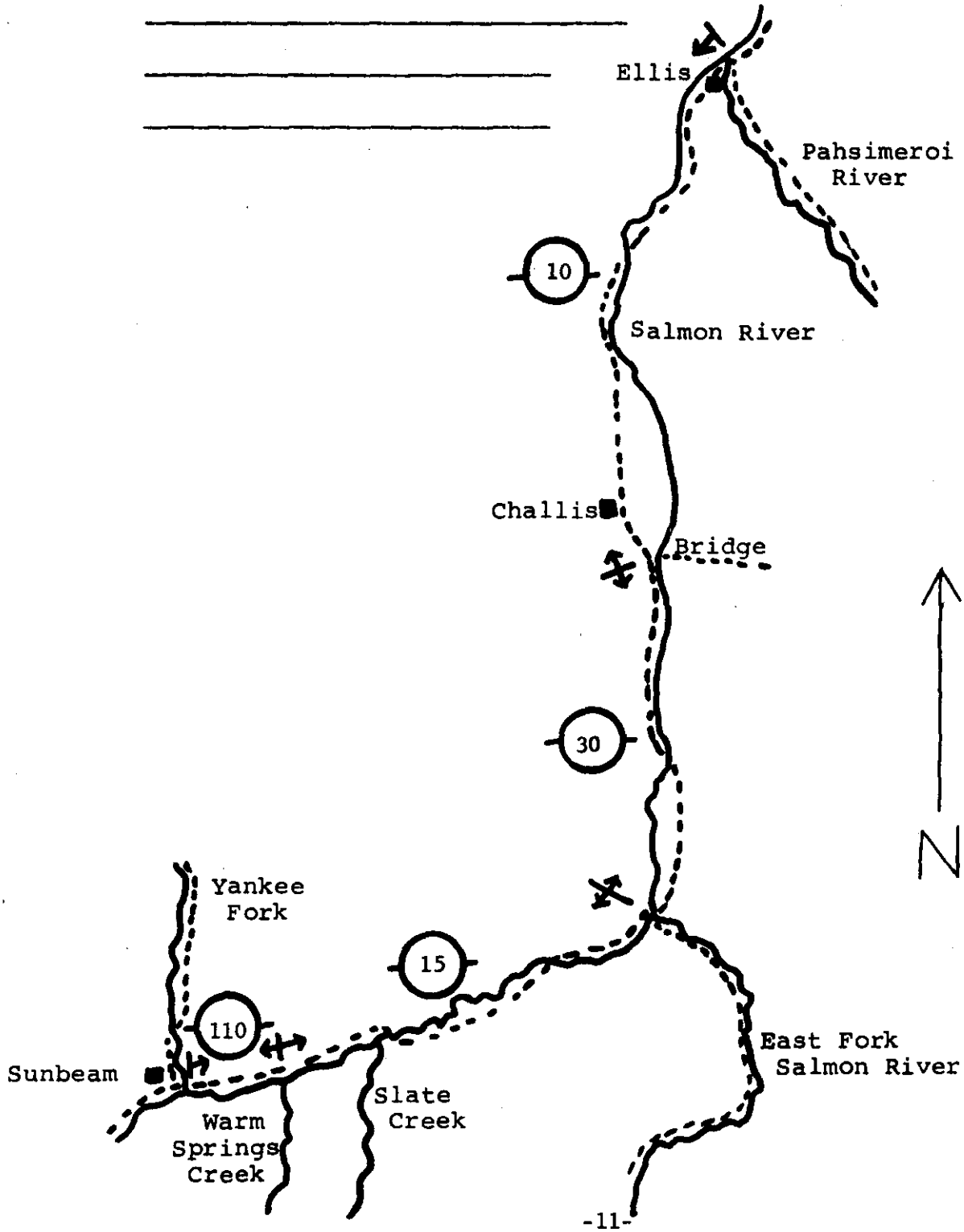
DRAINAGE Salmon River SURVEY DATE 9-11

STREAM Salmon River MAP SCALE 1/6" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Yates

TIMING: Early On Time Late (mark one)

REMARKS: _____



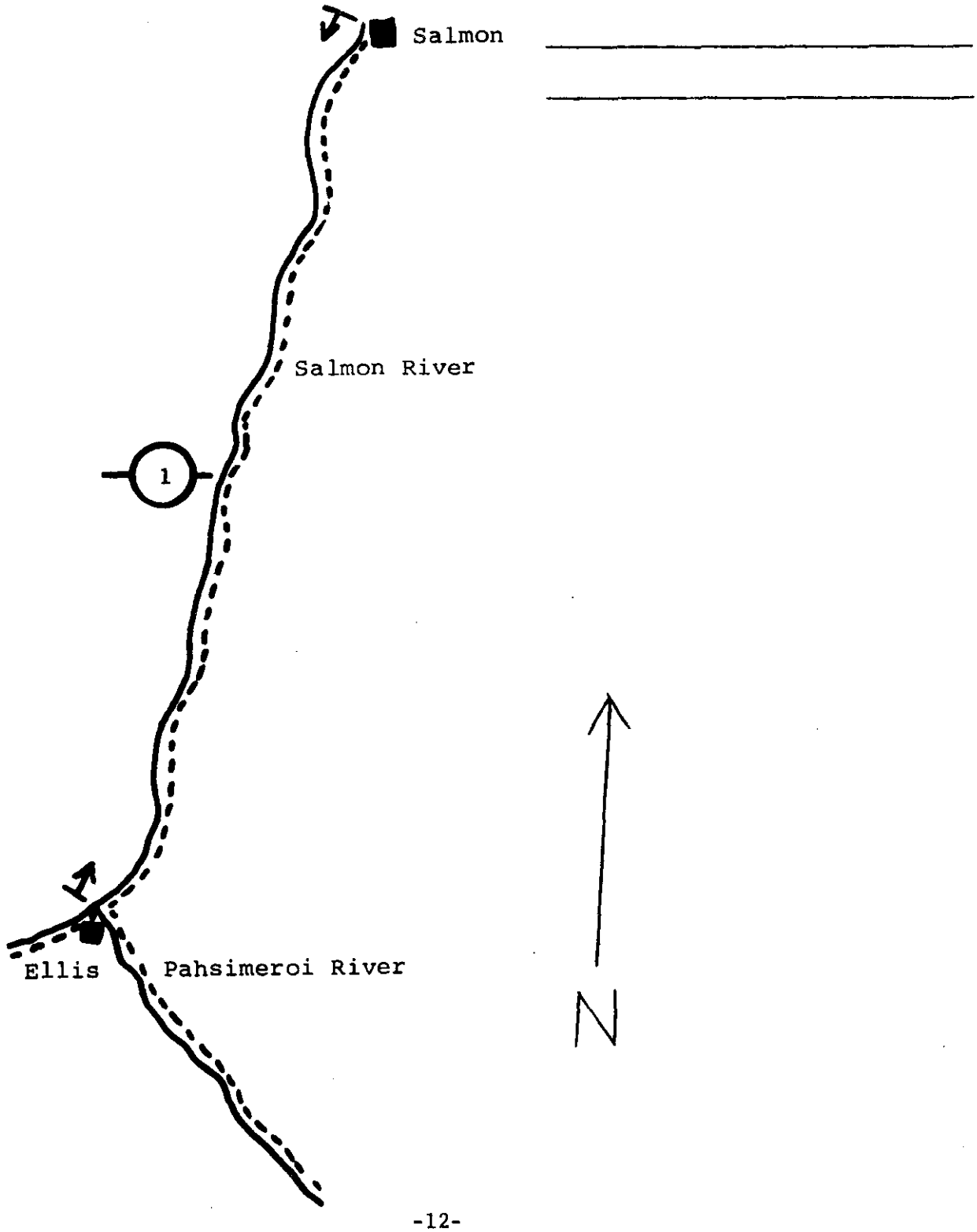
DRAINAGE Salmon River SURVEY DATE 9-11

STREAM Salmon River MAP SCALE 1/4" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Yates

TIMING: Early On Time Late (mark one)

REMARKS: _____



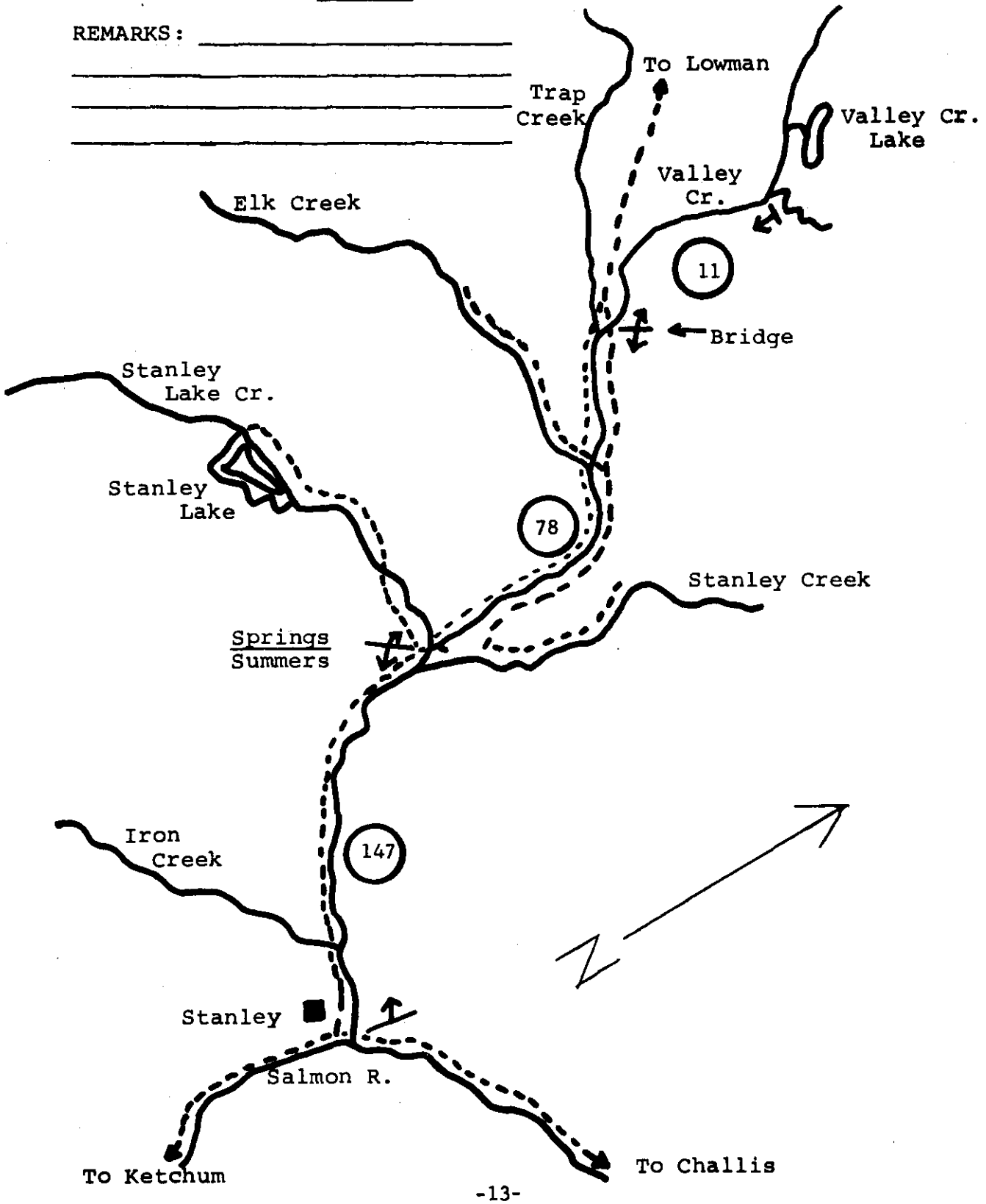
DRAINAGE Salmon River SURVEY DATE 8-25, 9-14

STREAM Valley Creek MAP SCALE 2/3" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Raymond, Smith, Strain, Yates

TIMING: Early On Time Late (mark one)

REMARKS: _____



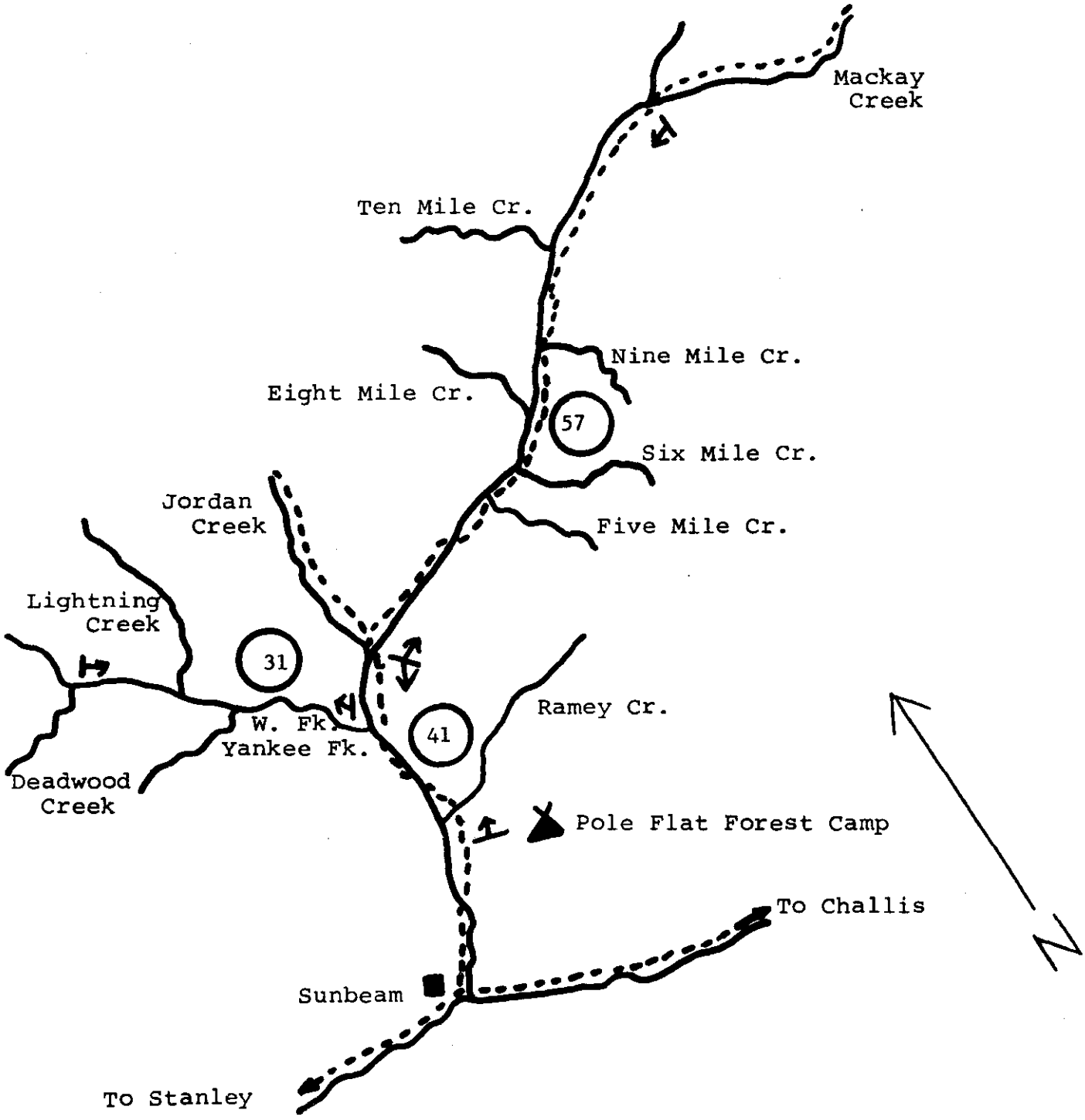
DRAINAGE Salmon River SURVEY DATE 8-19, 8-30, 9-8

STREAM Yankee Fork MAP SCALE 1/3" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Darrington, Smith, Cravens, Yates

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE Salmon River SURVEY DATE 8-27, 9-1, 9-10, 9-11

STREAM East Fork MAP SCALE 1/6" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Raymond, Smith, Strain, Yates

TIMING: Early On Time Late (mark one)

REMARKS: _____

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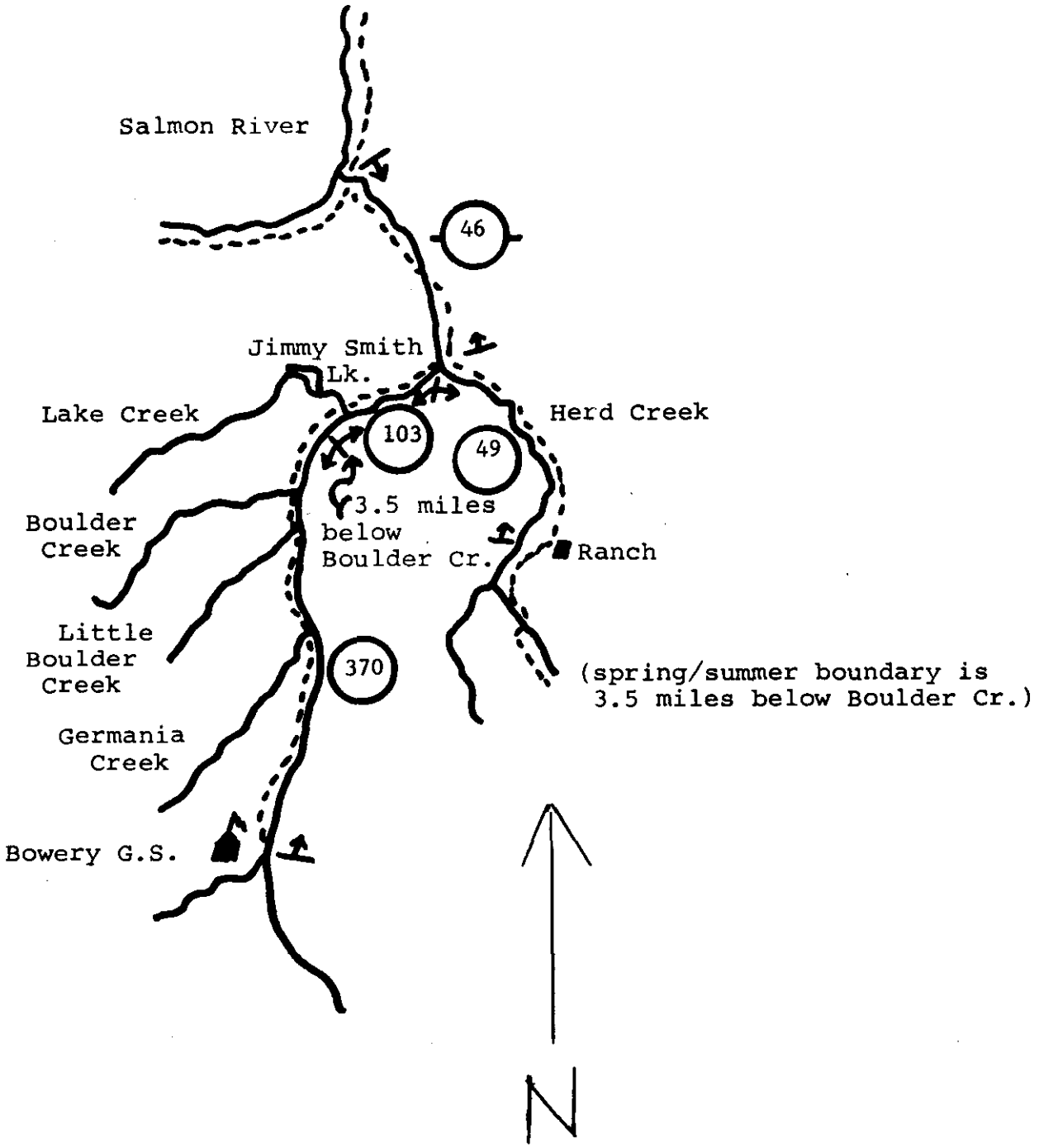


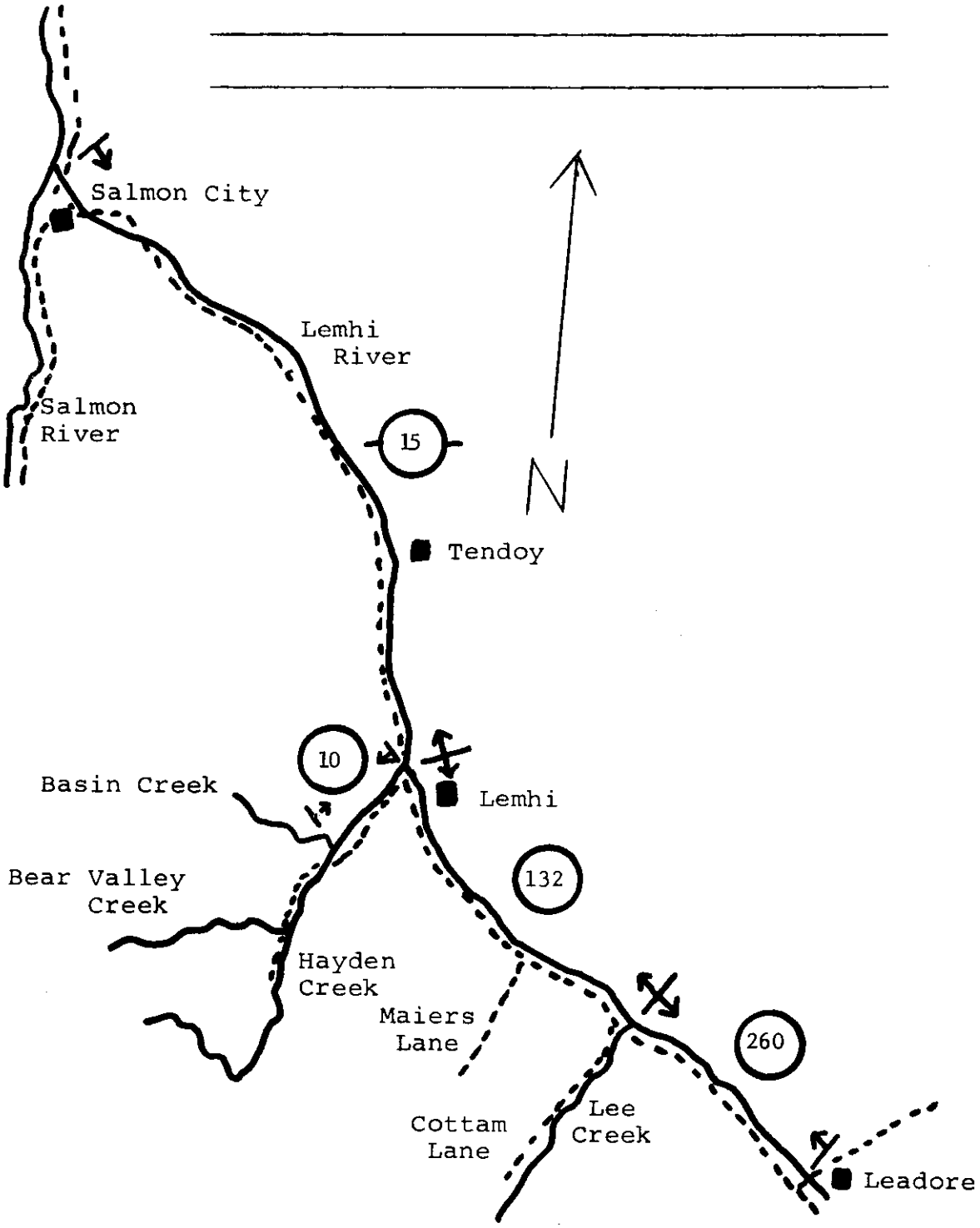
DRAINAGE Salmon River SURVEY DATE 9-13, 9-16, 9-17

STREAM Lemhi River MAP SCALE 1/6" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Strain, Yates, Yowell

TIMING: Early On Time Late (mark one)

REMARKS: _____



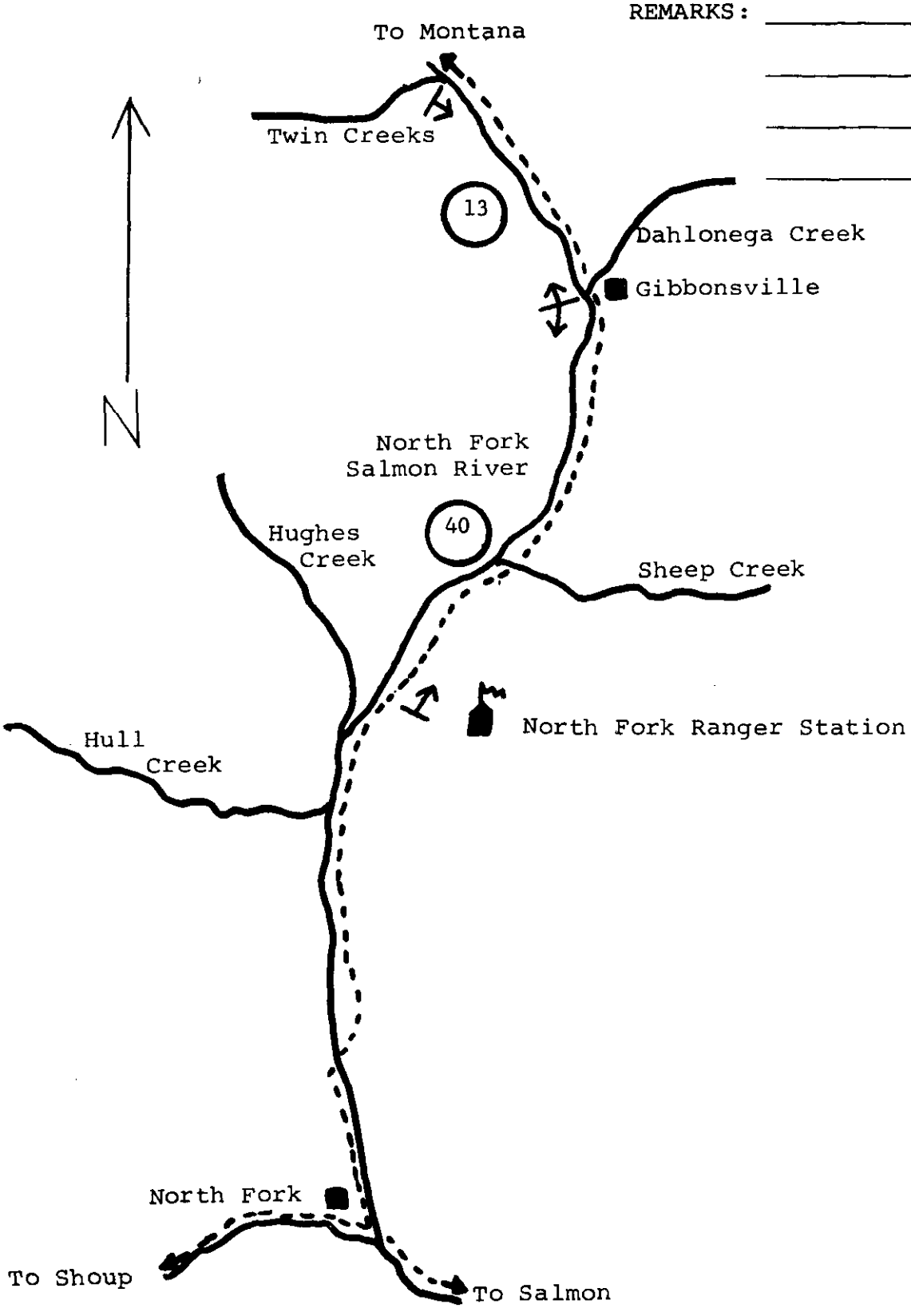
DRAINAGE Salmon River SURVEY DATE 9-13

STREAM North Fork MAP SCALE 1/2" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Carroll, Yates

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE Salmon River SURVEY DATE 9-6

STREAM M. F. Salmon River MAP SCALE 1/4" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Yates

TIMING: Early On Time Lake (mark one)

REMARKS: _____

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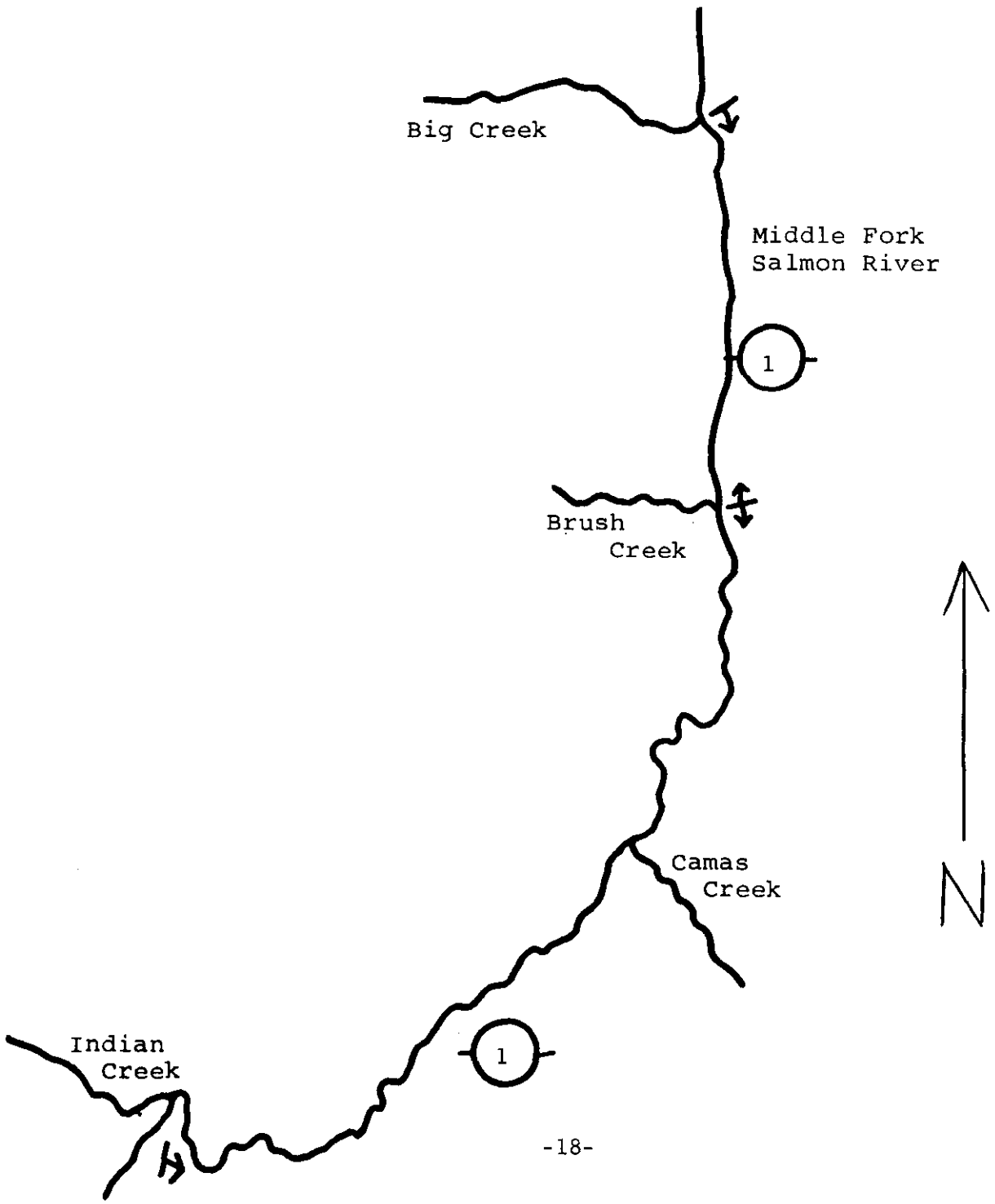


DRAINAGE Salmon River

SURVEY DATE 9-6

STREAM M. F. Salmon River

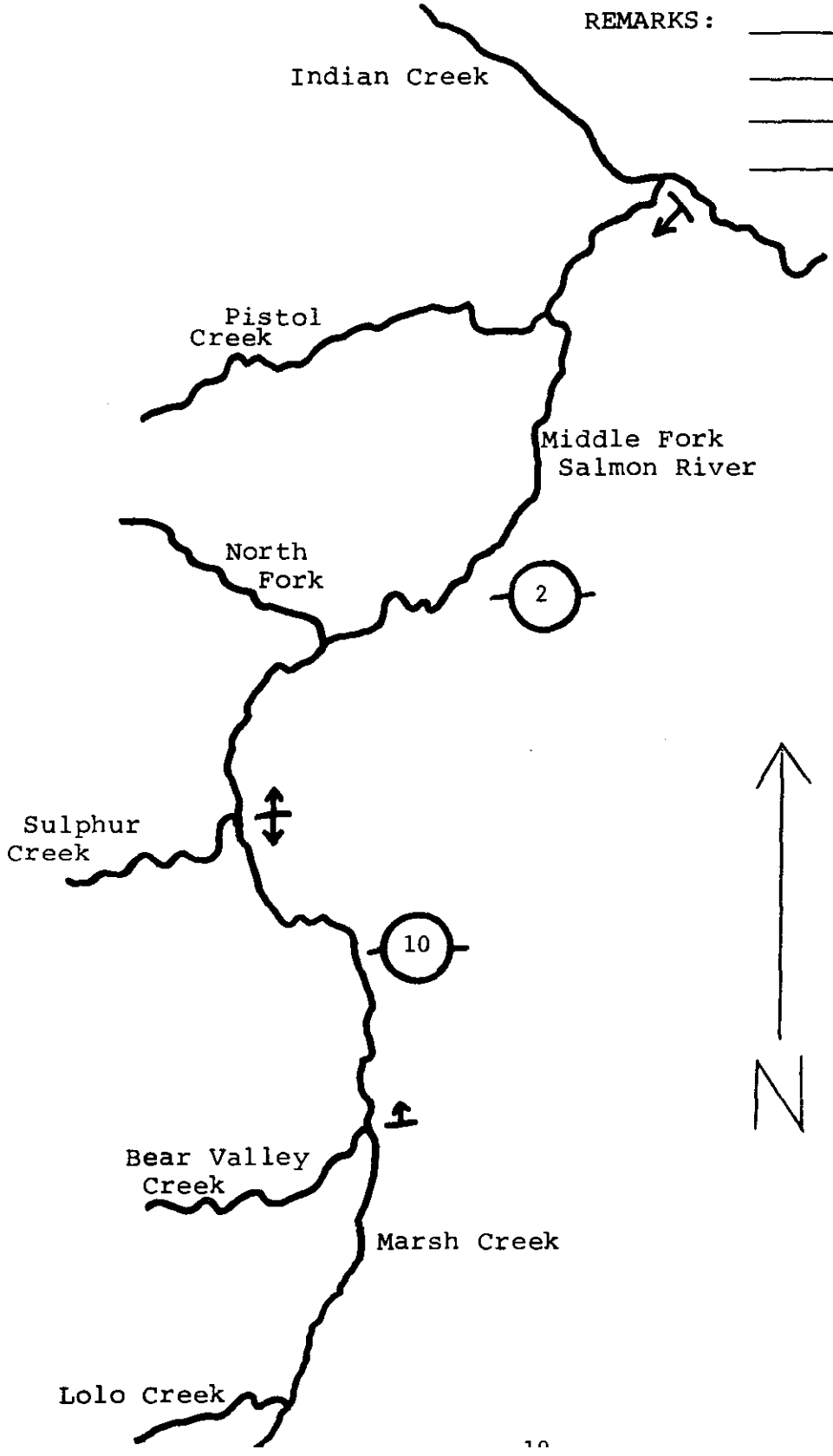
MAP SCALE 1/4" = 1 mile

OBSERVATION CONDITIONS Good

OBSERVER Yates

TIMING: Early On Time Late (mark one)

REMARKS:



DRAINAGE M. F. Salmon River — SURVEY DATE 8-20, 8-17, 8-23

STREAM Marsh, Beaver, Knapp, Capehorn Creeks — MAP SCALE 2/3" - 1 mile

OBSERVATION CONDITIONS Good — OBSERVER Raymond, Darrington, Cravens, Smith

TIMING: Early On Time Late (mark one)

REMARKS: _____

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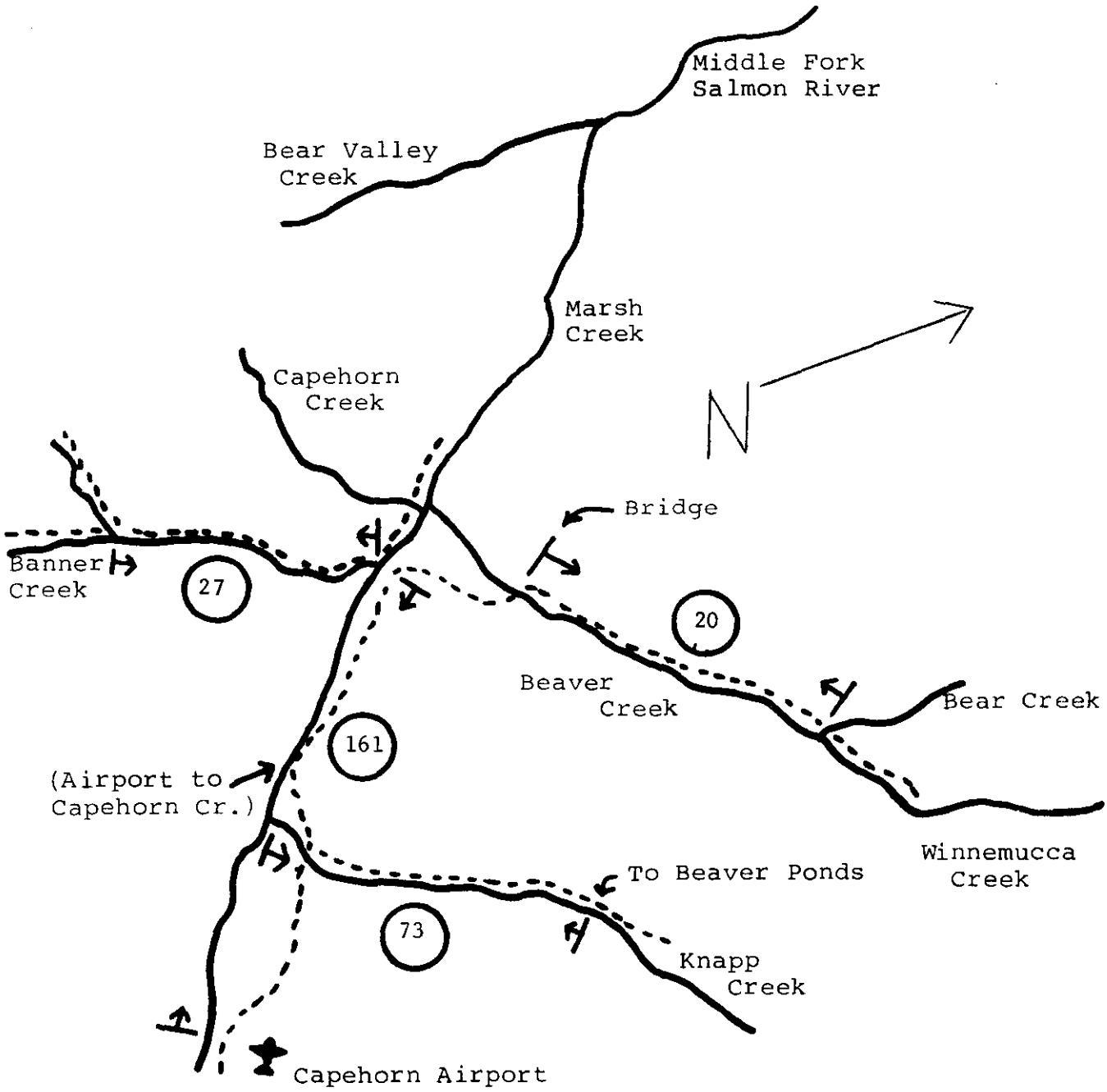


Ground Count
Corduroy Meadows on 8/23/71

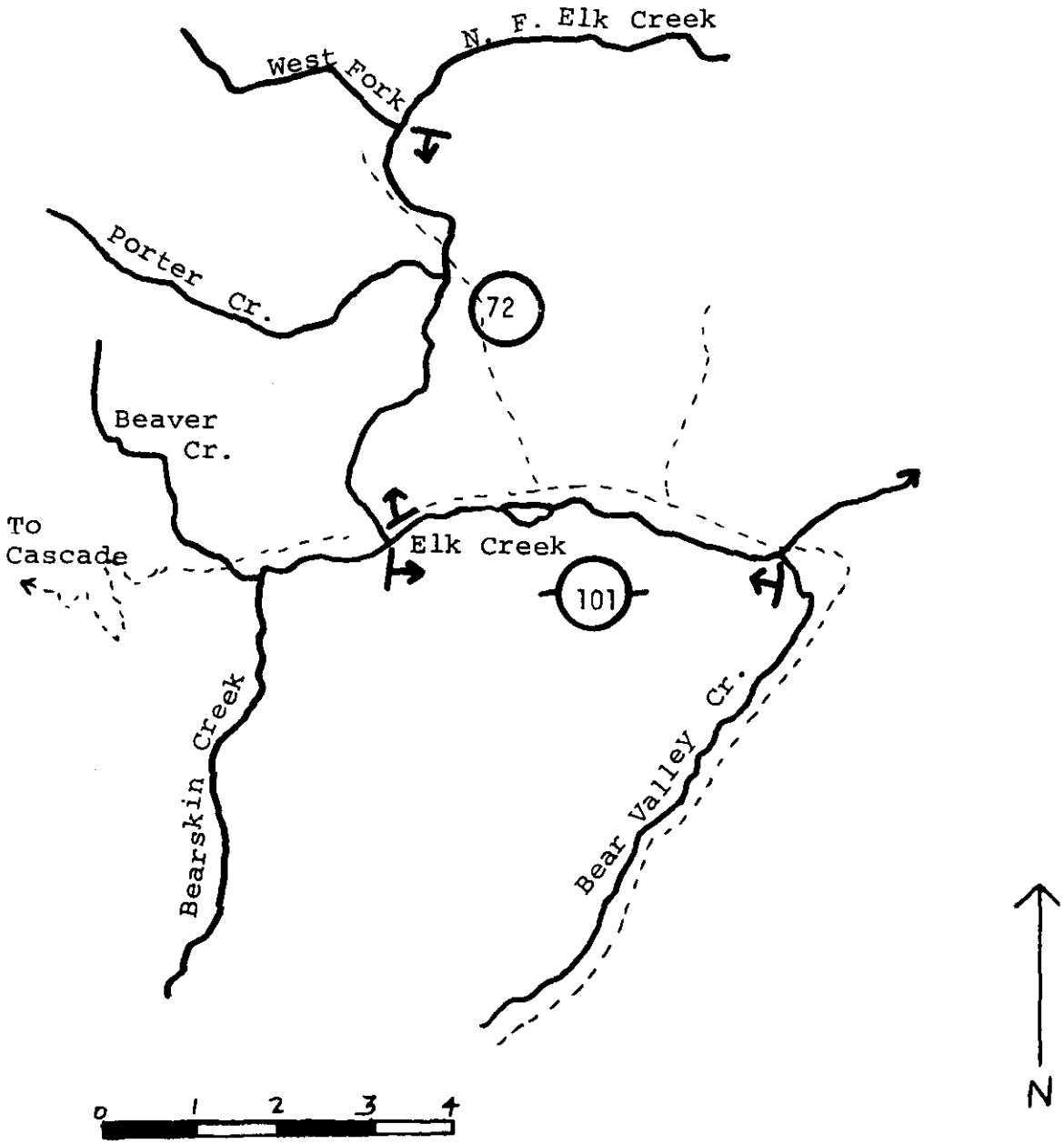
DRAINAGE M. F. Salmon River SURVEY DATE Aerial Count 8/26/71

STREAM Elk Creek MAP SCALE 1" = 2 miles

OBSERVATION CONDITIONS Excellent OBSERVER Welsh

TIMING: Early On Time Late (mark one)

REMARKS: _____



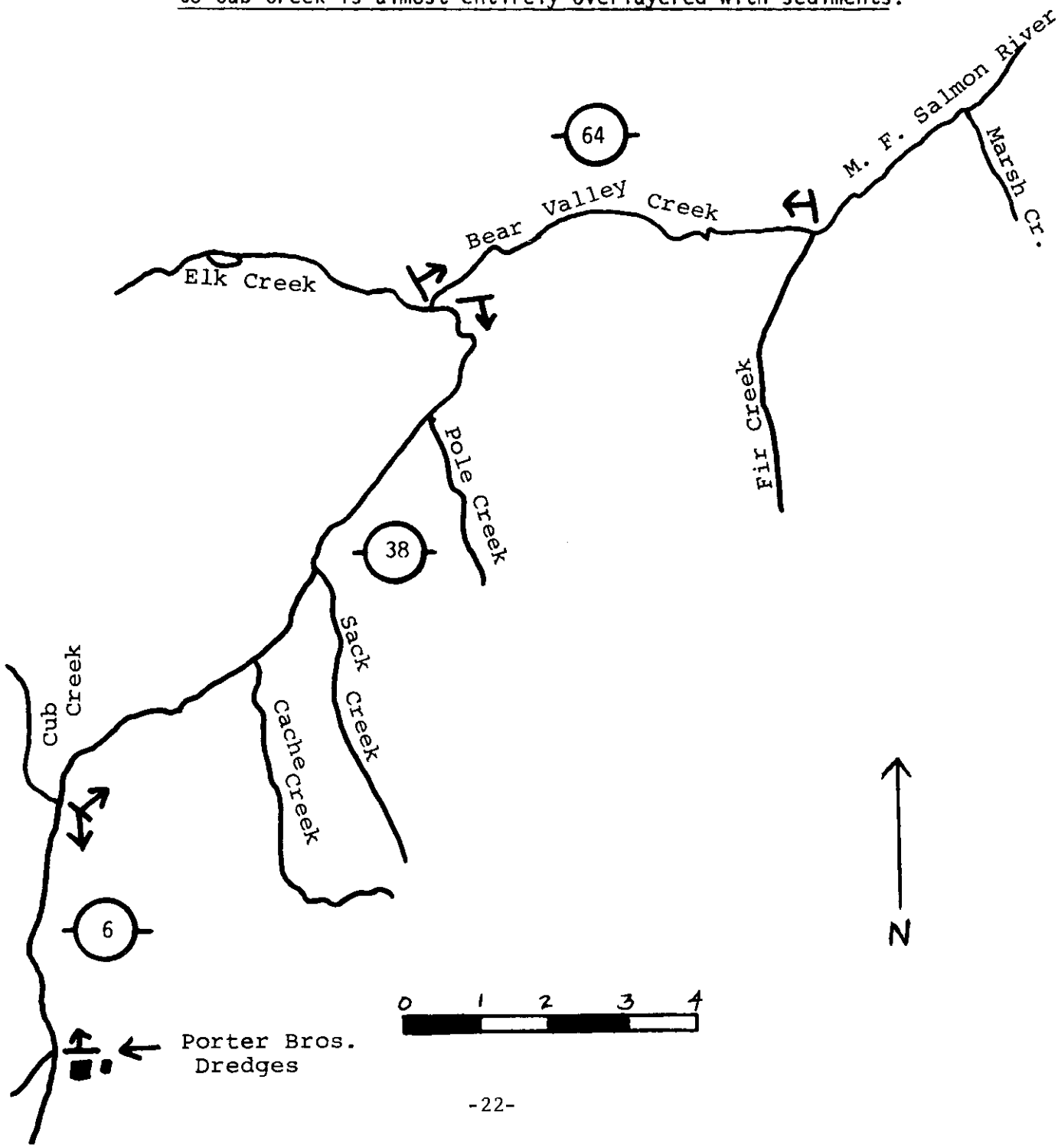
DRAINAGE M. F. Salmon River SURVEY DATE 8/26/71

STREAM Bear Valley Creek MAP SCALE 1" = 2 miles

OBSERVATION CONDITIONS Good OBSERVER Welsh

TIMING: Early On Time Late (mark one)

REMARKS: On July 30, 1971, 25 salmon were counted in the live fish trend area from the bridge at the mouth of Elk Creek downstream to the lower holding pond weir site. On the aerial count, 44 redds were counted in the same section. The stream section from Porter Bros. Dredges to Cub Creek is almost entirely overlayered with sediments.



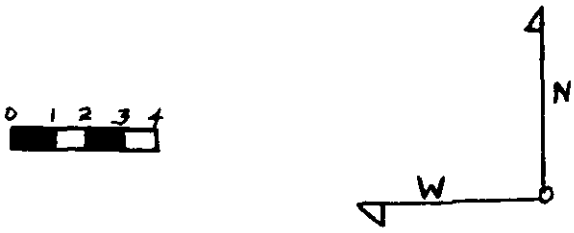
DRAINAGE M. F. Salmon River SURVEY DATE 8/20/71

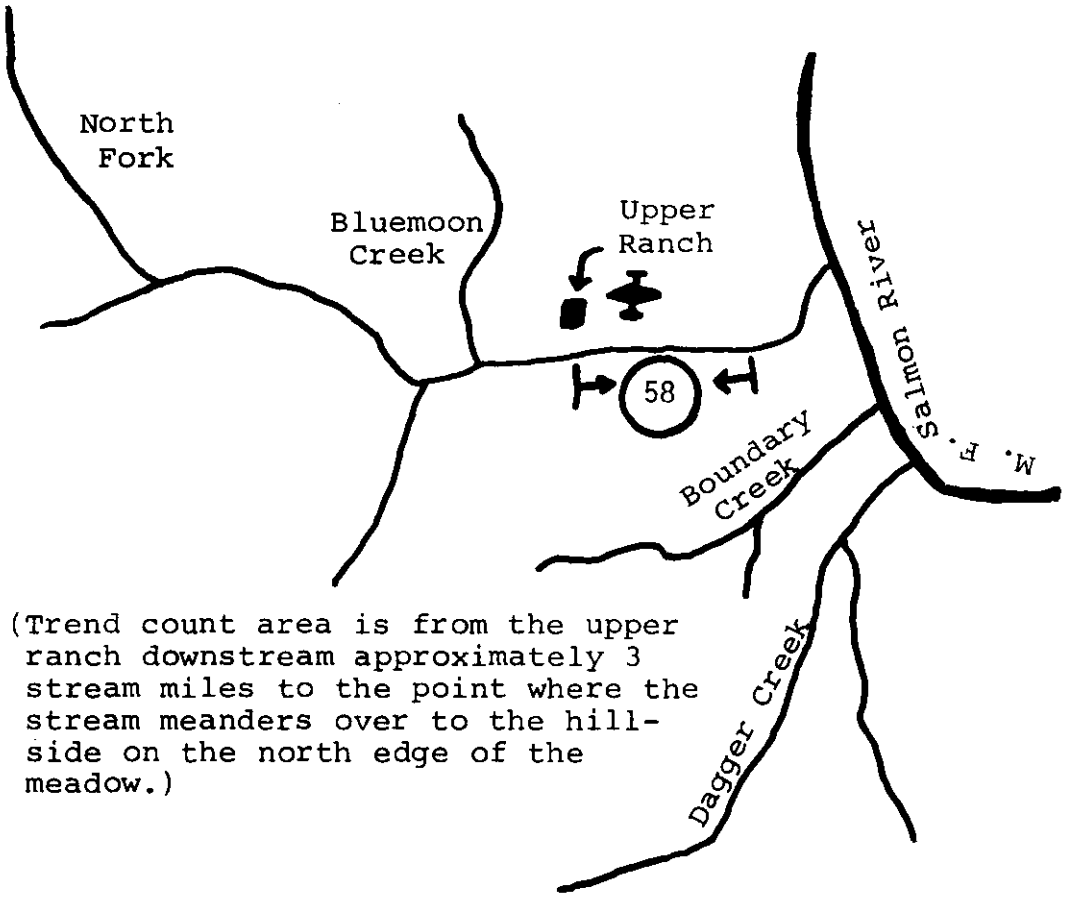
STREAM Sulphur Creek MAP SCALE 1/6" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Welsh

TIMING: Early On Time Late (mark one)

REMARKS: Previous counts indicate trend area represents about 50 per cent of total number of redds in Sulphur Creek.





(Trend count area is from the upper ranch downstream approximately 3 stream miles to the point where the stream meanders over to the hillside on the north edge of the meadow.)

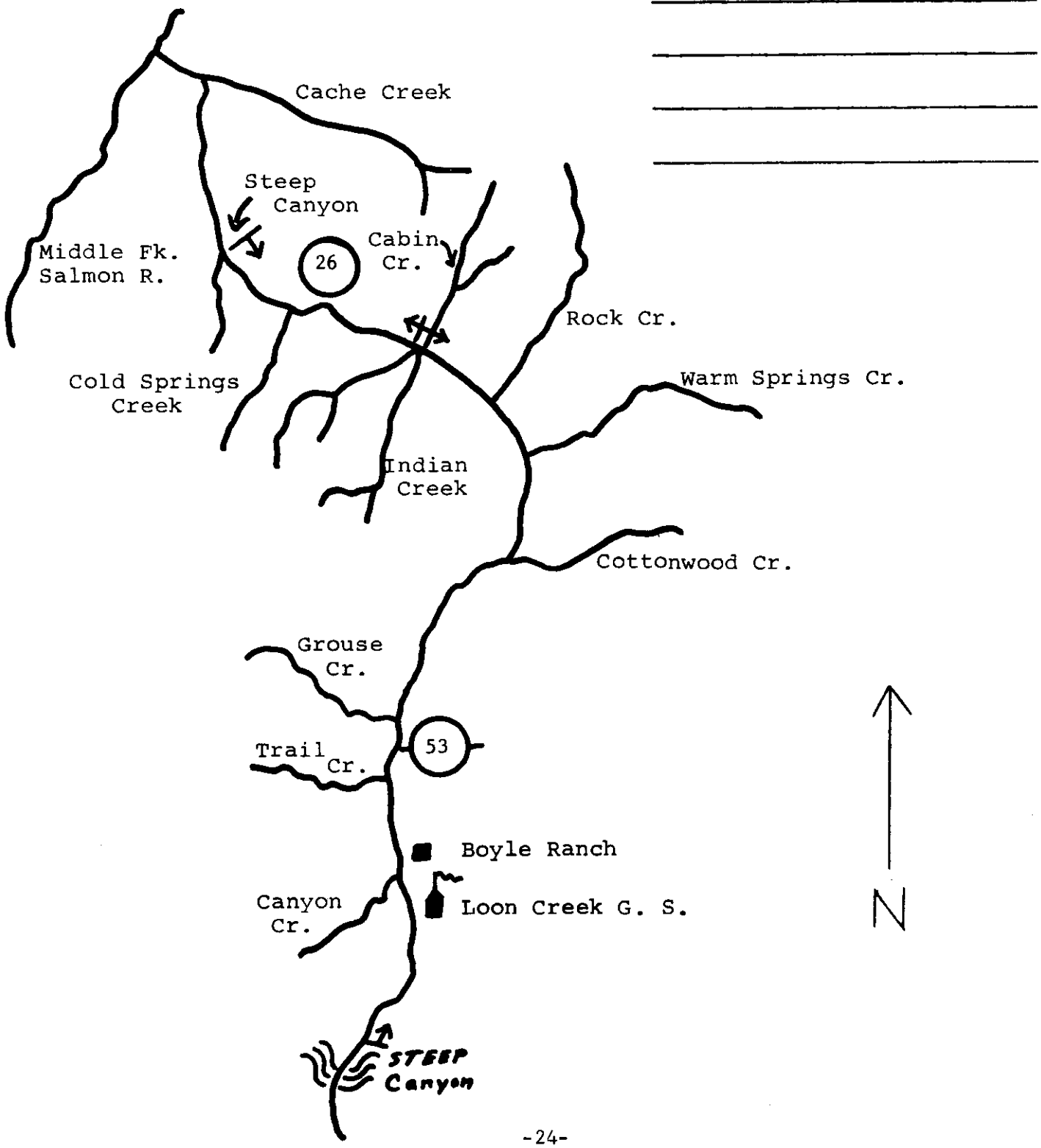
DRAINAGE Middle Fork Salmon River SURVEY DATE 9-13

STREAM Loon Creek MAP SCALE 1/3" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Yates, Strain

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE M. F. Salmon River SURVEY DATE 8-18, 9-9

STREAM Camas Creek MAP SCALE 1/4" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Smith, Cravens, Strain, Darrington

TIMING: Early On Time Late (mark one)

REMARKS: _____

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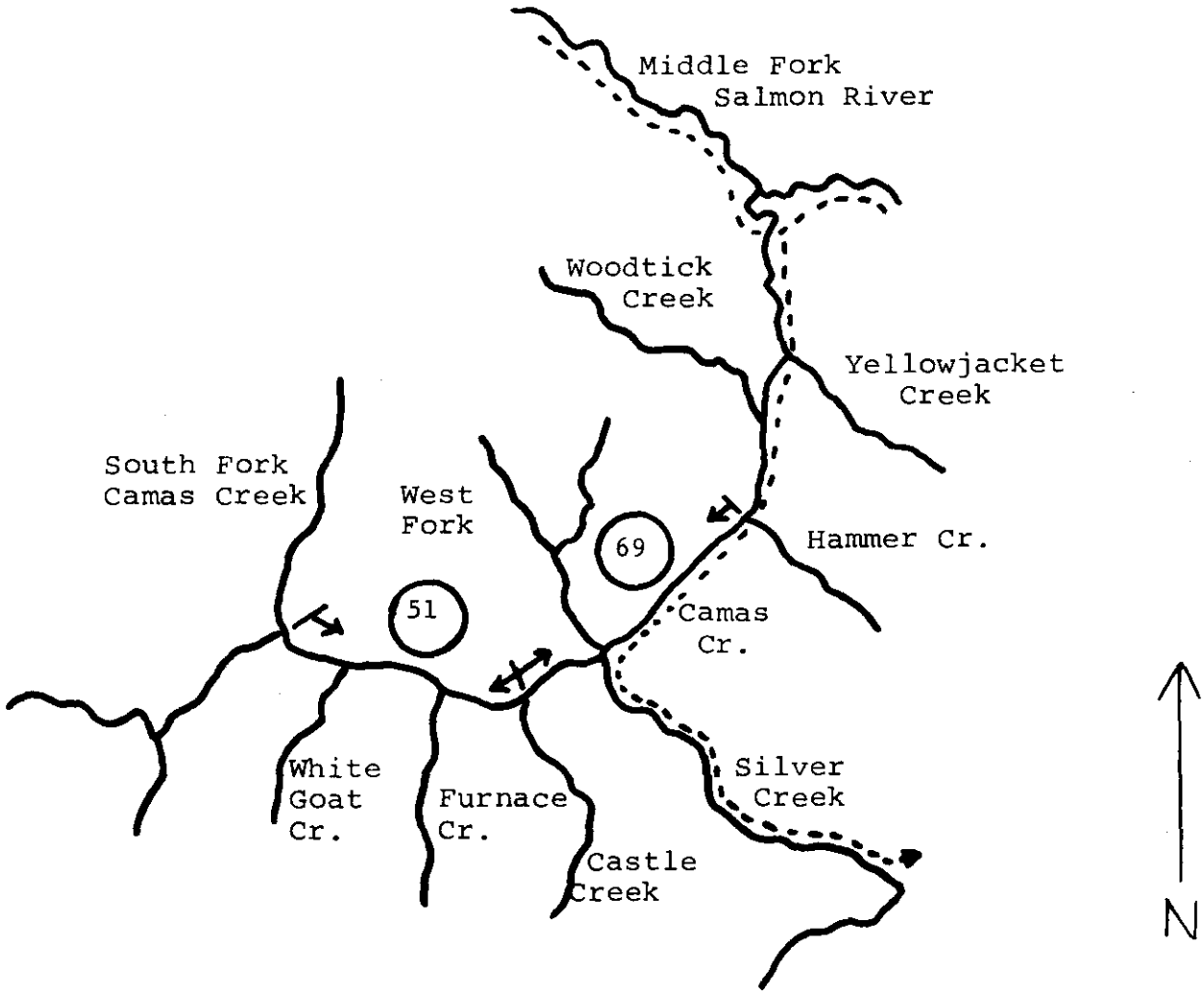


Ground Count Upper area 8/24/71

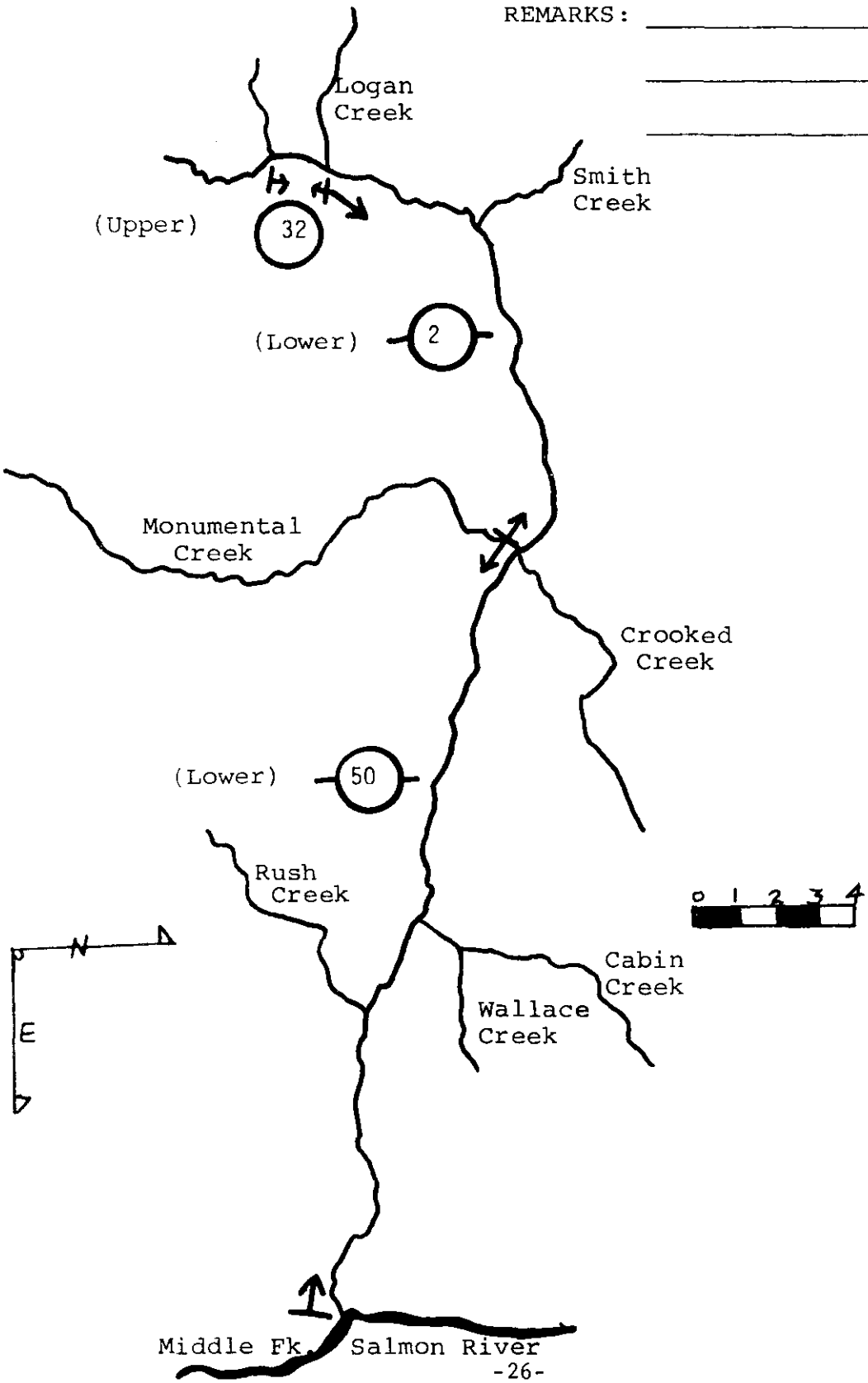
DRAINAGE M. F. Salmon River SURVEY DATE Aerial count lower area 9/10/71

STREAM Big Creek MAP SCALE 1" = 4 miles

OBSERVATION CONDITIONS Good OBSERVER Welsh

TIMING: Early On Time Late (mark one)

REMARKS: _____



DRAINAGE Salmon River

SURVEY DATE Aerial Count 9/14/71
Stolle ground count 8/27/71

STREAM S. F. Salmon River

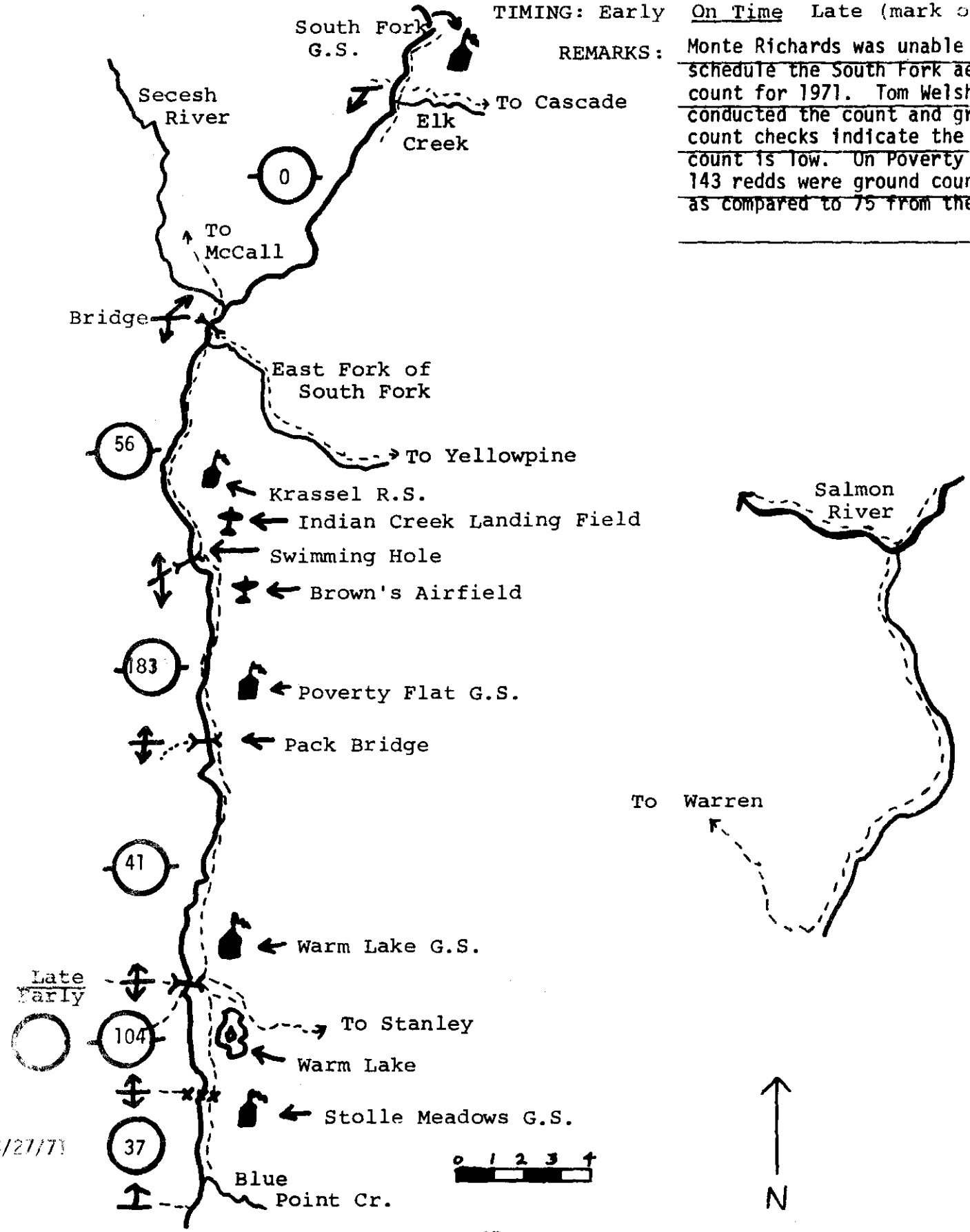
MAP SCALE 1/4" - 1 mile

OBSERVATION CONDITIONS Good

OBSERVER Welsh

TIMING: Early On Time Late (mark one)

REMARKS: Monte Richards was unable to schedule the South Fork aerial count for 1971. Tom Welsh conducted the count and ground count checks indicate the aerial count is low. On Poverty Flat, 143 redds were ground counted, as compared to 75 from the air.



5/27/71

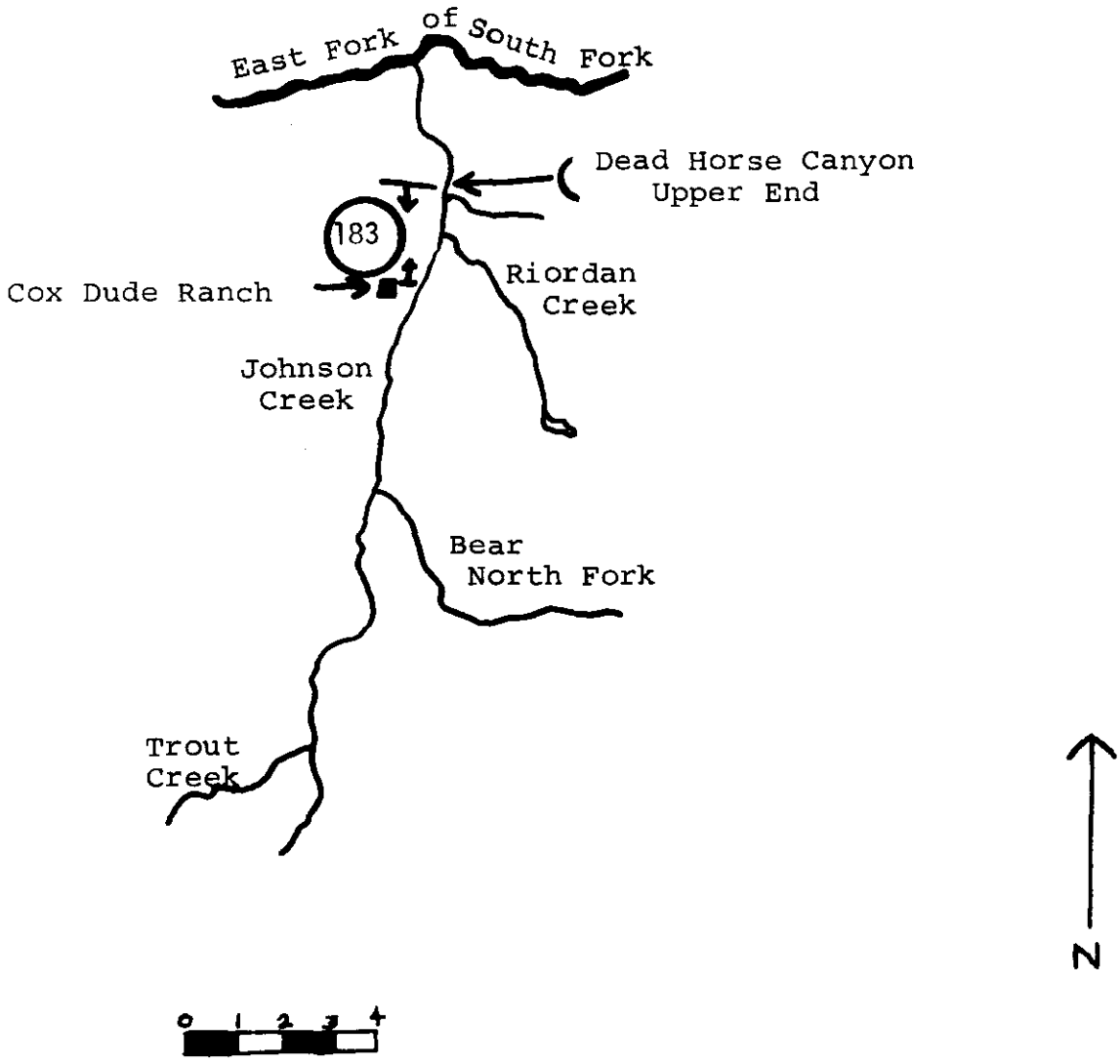
DRAINAGE E. F. of South Fork SURVEY DATE 9/13/71

STREAM Johnson Creek MAP SCALE 1" = 4 miles

OBSERVATION CONDITIONS Good OBSERVER Welsh

TIMING: Early On Time Late (mark one)

REMARKS: On 9/9/71, Don Park counted 182 redds in the same section



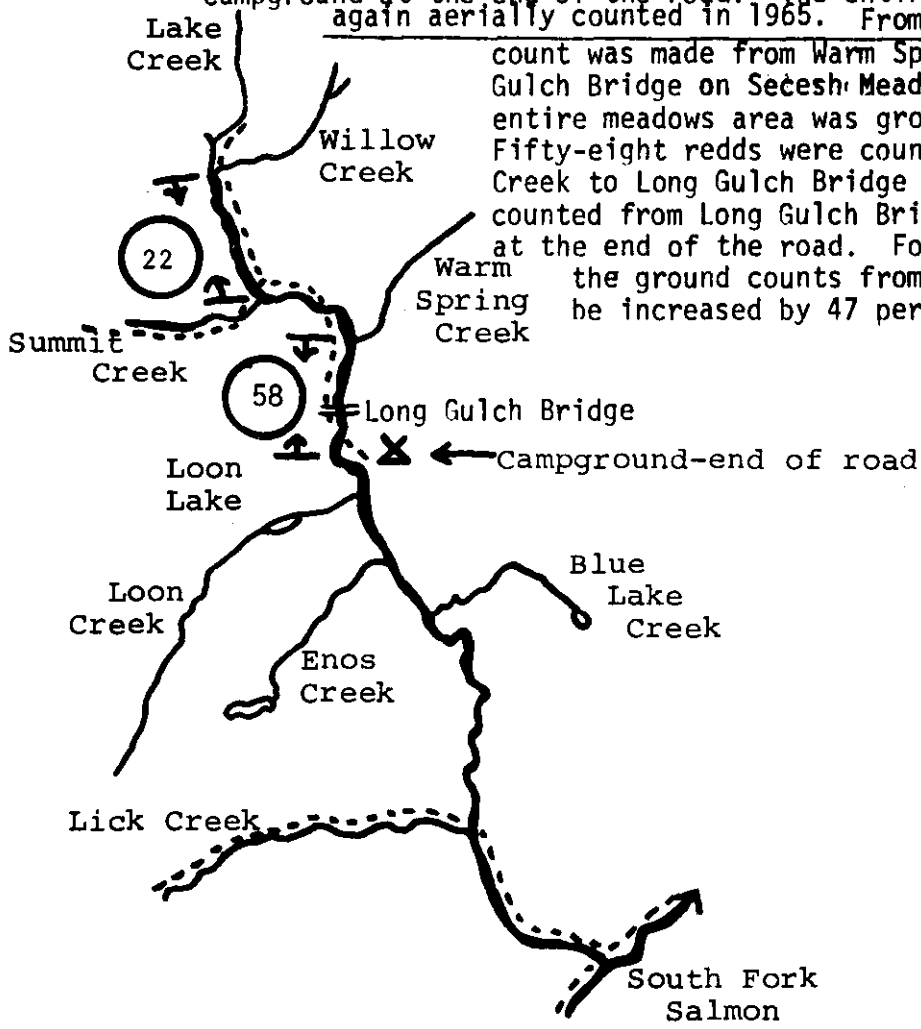
DRAINAGE S. F. Salmon River SURVEY DATE 9/7/71

STREAM Secesh and Lake Creek MAP SCALE 1" = 4 miles

OBSERVATION CONDITIONS Good OBSERVER Welsh

TIMING: Early On Time Late (mark one)

REMARKS: Counting procedure has varied considerably on the Secesh River. The river was counted from the air until 1964. In 1964 the river was ground counted from Warm Springs Creek to the campground at the end of the road. The entire river was again aerially counted in 1965. From 1966 on, a ground count was made from Warm Springs Creek to Long Gulch Bridge on Secesh Meadow. In 1971, the entire meadows area was ground counted. Fifty-eight redds were counted from Warm Springs Creek to Long Gulch Bridge and 51 redds were counted from Long Gulch Bridge to the campground at the end of the road. For comparison purposes, the ground counts from 1966-1971 should be increased by 47 per cent.



DRAINAGE Selway River SURVEY DATE 9-7-71

STREAM As noted MAP SCALE 1/8" = 1 mile

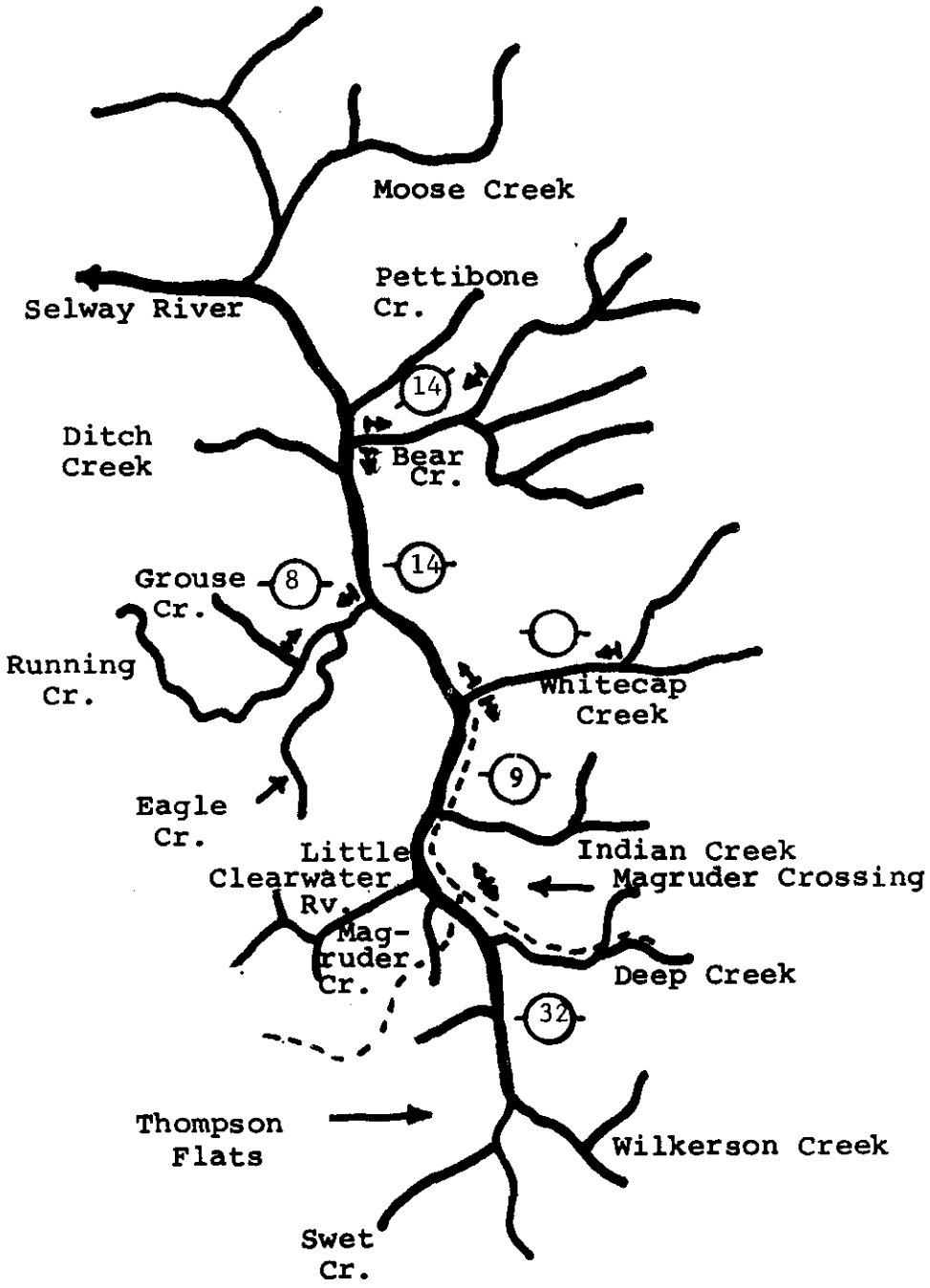
OBSERVATION CONDITIONS Good OBSERVER Holubetz, Hoss

TIMING: Early On Time Late (mark one)

REMARKS: _____

_____

_____



DRAINAGE Lochsa River SURVEY DATE 8-30

STREAM Crooked Fork MAP SCALE 1/4" = 1 mile

OBSERVATION CONDITIONS Good OBSERVER Hoss

TIMING: Early On Time Late (mark one)

REMARKS: _____

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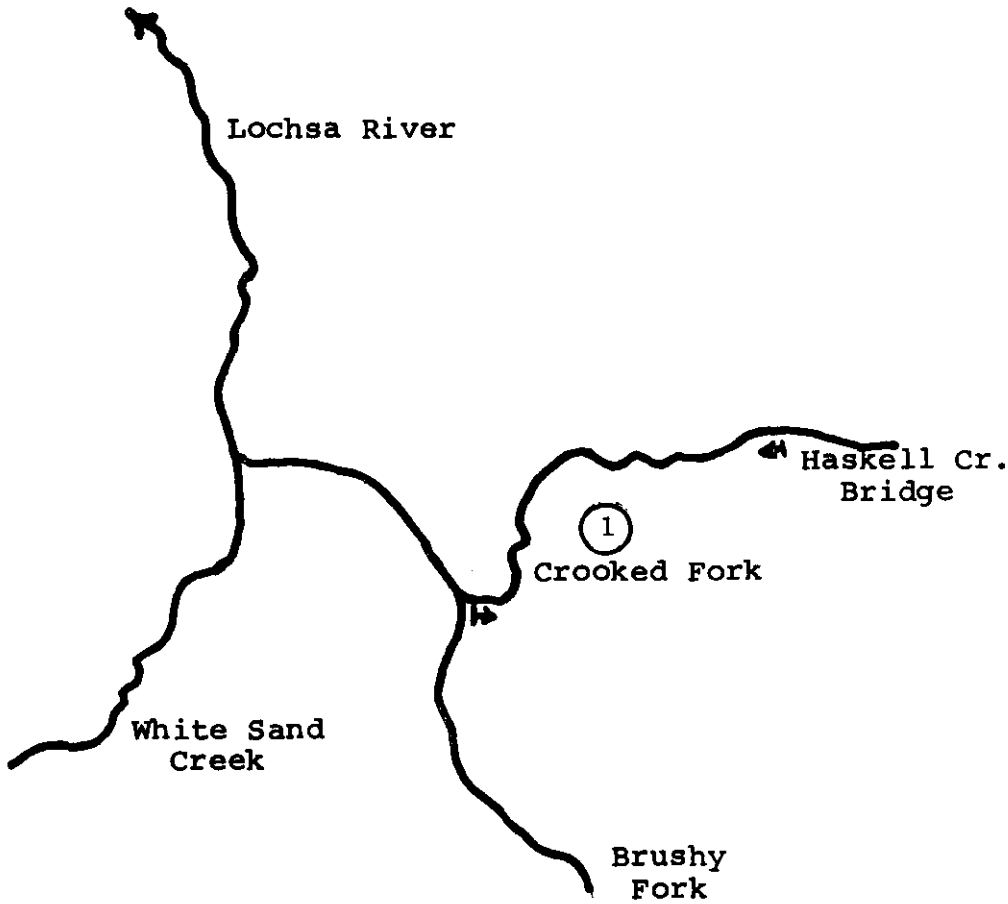

Submitted by:
Terry Holubetz
Regional Fishery Biologist

Steven A. Hoss
Fishery Biologist

Thomas L. Welsh
Regional Fishery Biologist

Donald R. Corley
Regional Fishery Biologist

Approved by:

IDAHO FISH AND GAME DEPARTMENT

Joseph C. Greenley, Director

James C. Simpson, Chief
Fisheries Division

Vernon B. Rich, Coordinator
IDAHO FEDERAL AID